Somerset SCR Experience after Three Operating Ozone Seasons

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Somerset SCR Design & Performance

- **Unit Size:** **675 MW**
- **Inlet NOx:** **0.55 lb/MBTU**
- **Outlet NOx:** **0.05 lb/MBTU**
- **NOx Reduction:** **90%**
- **Ammonia Slip:** **3 ppm**
- **Catalyst Life:** **24,000 hours**

Somerset SCR Design & Performance

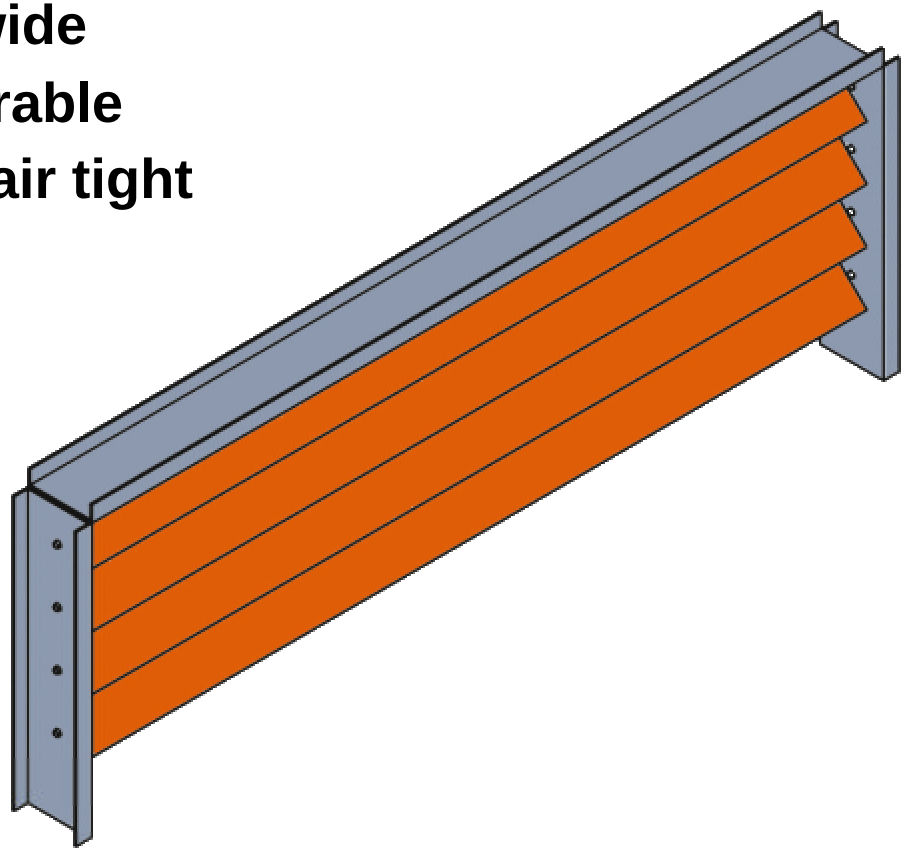
- **Sulfur in Coal:** **2.5 - 3.0 %**
- **CaO in Ash:** **3-6%**
- **Arsenic in Coal:** **< 10 ppm**
- **Flue Gas Temperature:** **650 F**
- **SO2 to SO3 Conversion:** **0.75%**
- **Catalyst:** **897m^3 6mm**

Significant Lessons Learned

- ***Ammonia Vapor Piping Revisions***
- ***NOx Analyzer System Replacement***
- ***Damper Frame Reinforcement***

Realities of SCR Damper Design

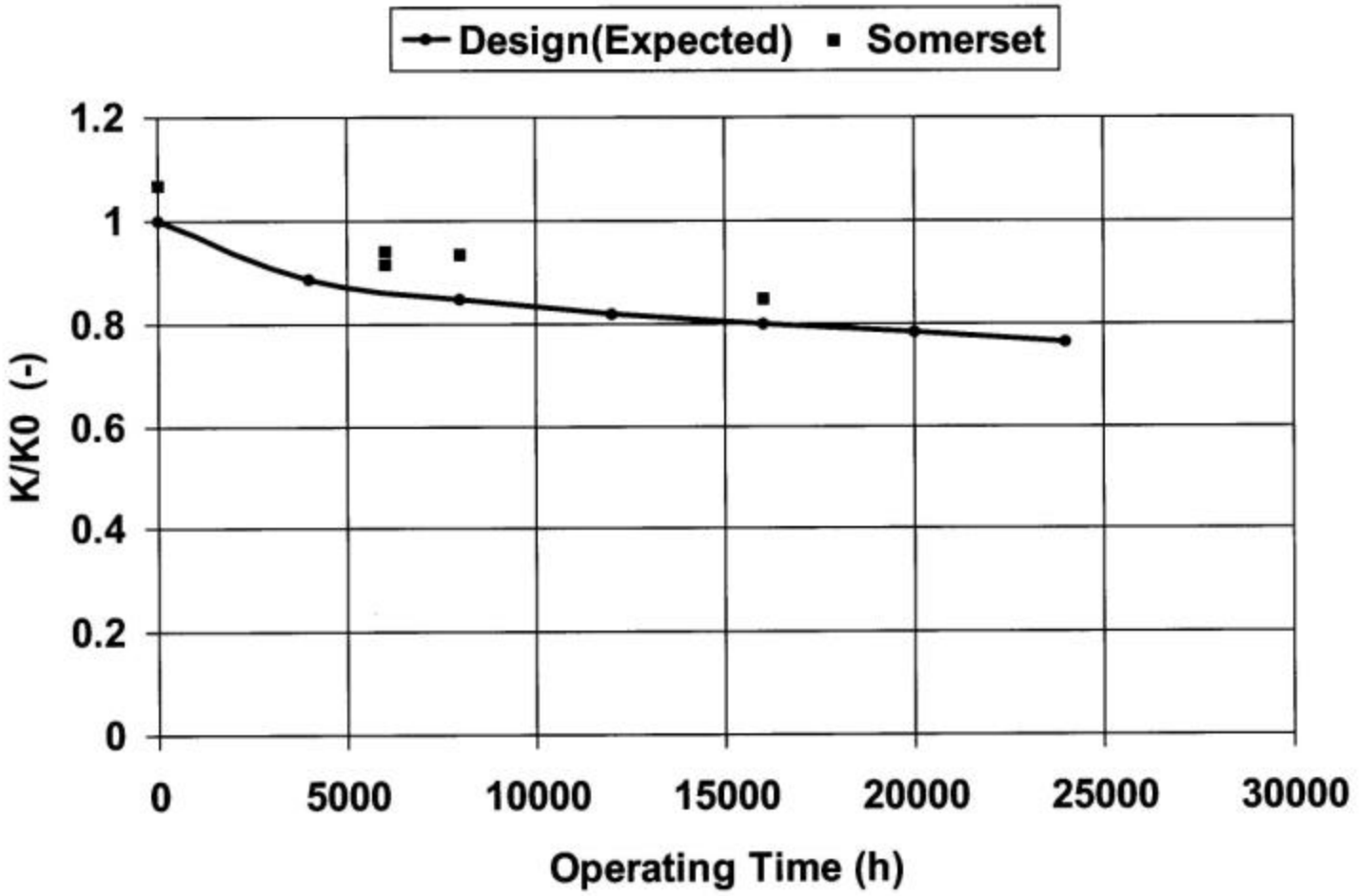
- **SCR Shutoff Dampers can be 35 to 45 feet wide**
- **Must remain operable**
- **Usually must be air tight**



Outage Inspection Findings

- Reactor and Catalyst
- Flues
- Ammonia Injection Grid
- Dampers
- Expansion Joints

Somerset Catalyst Deactivation



Conclusions On SCR Installation

- Lessons Were Learned and Changes Were Made
- Catalyst
  - Activity is on Track
  - Limited Arsenic Poisoning
  - Normal Ash Accumulation
- Outages
  - No Major Areas of Ash Accumulation or Erosion
  - Typical Maintenance Required
- Operation
  - Limited Downstream Effects
  - SCR System Continues to Operate on Demand

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